LAB - 2

1.

```java
import java.util.Scanner;
public class UsingData
{
    public static void main(String[] args)
    {
        int value1,value2;

        Scanner input1 = new Scanner(System.in);

        System.out.print("Input 1st integer: ");
        value1 = input1.nextInt();

        Scanner input2 = new Scanner(System.in);

        System.out.print("Input 2nd integer: ");
        value2 = input2.nextInt();


        System.out.println("Sum of two integers: " + (value1+value2));
        System.out.println("Difference of two integers: "+ (value1-value2));
        System.out.println("Product of two integers: "+ (value1*value2));
        System.out.println("Average of two integers: "+ (value1+value2)/2);
        System.out.println("Distance of two integers: "+ Math.abs(value1-
value2));
        System.out.println("Max integer: " + Math.max(value1,value2) );
        System.out.println("Min integer: " + Math.min(value1,value2));
    }
}
```

Output -

```
manis@DESKTOP-279PI44 MINGW64 /f/RDP/1st Term/Introduction to Programming/Lab/Lab 2
$ cd "/f/RDP/1st Term/Introduction to Programming/Lab/Lab 2/" && javac UsingData.java && java UsingData
Input 1st integer: 25
Input 2nd integer: 5
Sum of two integers: 30
Difference of two integers: 20
Product of two integers: 125
Average of two integers: 15
Distance of two integers: 20
Max integer: 25
Min integer: 5
```

2.

```
public class Student
{

    private int idNumber;
    private int CreditHours;
    private int points;


    public Student()
    {
        idNumber = 9999;
        CreditHours = 3;
        points = 12;
    }


    public void setIdNumber(int number)
    {
        idNumber = number;
    }

    public int getIdNumber()
    {
        return idNumber;
    }

    public void setHours(int number)
    {
        CreditHours = number;
    }

    public int getHours()
    {
        return CreditHours;
    }

    public void setPoints(int number)
    {
        points = number;
    }

    public int getPoints()
    {
        return points;
```

```
    }

    public void showIdNumber()
    {
        System.out.println("ID Number is: "+idNumber);
    }

    public void showHours()
    {
        System.out.println("Credit Hours: " + CreditHours);
    }

    public void showPoints()
    {
        System.out.println("Points Earned: "+points);
    }

    public double getGradePoint()
    {
        double getGradePoint = (double)points/CreditHours;
        return getGradePoint;
    }
}
```

3.

Part – 1

```
public class ShowStudent
{
   public static void main (String[] args)
   {
      Student david = new Student();
      david.setIdNumber(365);
      david.setPoints(75);
      david.setHours(20);

      david.showIdNumber();
      david.showPoints();
      david.showHours();
      System.out.println("The average grade point is " + david.getGradePoint());
   }
}
```

Output –

```
manis@DESKTOP-279PI44 MINGW64 /f/RDP/1st Term/Introduction to Programming/Lab/Lab 2
$ cd "/f/RDP/1st Term/Introduction to Programming/Lab/Lab 2/" && javac ShowStudent.java && java ShowStudent
ID Number is: 365
Points Earned: 75
Credit Hours: 20
The average grade point is 3.75
```

Part – 2

```
class ShowStudent2
{
   public static void main (String[] args)
   {
      Student david = new Student();
      david.showIdNumber();
      david.showPoints();
      david.showHours();
      System.out.println("The average grade point is " + david.getGradePoint());
   }
}
```

Output –

```
manis@DESKTOP-279PI44 MINGW64 /f/RDP/1st Term/Introduction to Programming/Lab/Lab 2
$ cd "/f/RDP/1st Term/Introduction to Programming/Lab/Lab 2/" && javac ShowStudent2.java && java ShowStudent2
ID Number is: 9999
Points Earned: 12
Credit Hours: 3
The average grade point is 4.0
```

4.

```
import java.util.Scanner;

public class PaintCalculator
{
    public static void main(String[] args)
    {
        double  length, width, height;
        Scanner input =  new Scanner(System.in);

        System.out.print("Enter Length: ");
        length = input.nextDouble();
        System.out.print("Enter Width: ");
        width = input.nextDouble();
        System.out.print("Enter Height: ");
        height = input.nextDouble();
```

```
        double area = CalculateArea(length, width, height);
        double cost = CalculateCost(area);

        System.out.println("The total paint's price is $" +cost);
    }

    public static double CalculateArea(double length, double width, double
height)
    {
        double area = ((height*length)*2)+((height*width)*2);
        return area;
    }

    public static double CalculateCost(double area)
    {
        double gallons, price;
        gallons = area/350;
        price = gallons*32;
        return price;
    }
}
```

Output –

```
manis@DESKTOP-279PI44 MINGW64 /f/RDP/1st Term/Introduction to Programming/Lab/Lab 2
$ cd "/f/RDP/1st Term/Introduction to Programming/Lab/Lab 2/" && javac PaintCalculator.java && java PaintCalculator
Enter Length: 20
Enter Width: 15
Enter Height: 10
The total paint's price is $64.0
```

5.

```
import java.util.Scanner;

public class Billing
{
    public static double computeBill(double price)
    {
        double total_due = price+(price*0.08);
        return total_due;
    }

    public static double computeBill(double price, int quantity)
```

```
    {
        double total_due;
        total_due = (price*quantity)+(price*0.08);
        return total_due;
    }

    public static double computeBill(double price, int quantity,double
CouponValue)
    {
        double total_due;
        total_due = (((price*quantity)-CouponValue))+(price*0.08);
        return total_due;
    }

    public static void main(String[] args)
    {
        Scanner input = new Scanner(System.in);

        System.out.print("Enter the price of one photo book($) - ");
        double price = input.nextDouble();

        System.out.print("Enter the Quantity - ");
        int quantity = input.nextInt();

        System.out.print("Enter the Coupon Value - ");
        double CouponValue = input.nextDouble();

        //For One Parameter
        double total1 = Billing.computeBill(price);
        System.out.println("The total due for one photo book - $" +total1);

        //For Two Parameter
        double total2 = Billing.computeBill(price,quantity);
        System.out.println("The total due for " +quantity+" photo books - $"
+total2);

        //For Three Parameter
        double total3 = Billing.computeBill(price,quantity,CouponValue);
        System.out.println("The total due for " +quantity+" photo books with a $"
+CouponValue+" Coupon - $" +total3);

        input.close();
    }
}
```

Output –

```
manis@DESKTOP-279PI44 MINGW64 /f/RDP/1st Term/Introduction to Programming/Lab/Lab 2
$ cd "/f/RDP/1st Term/Introduction to Programming/Lab/Lab 2/" && javac Billing.java && java Billing
Enter the price of one photo book($) - 10
Enter the Quantity - 2
Enter the Coupon Value - 5
The total due for one photo book - $10.8
The total due for 2 photo books - $20.8
The total due for 2 photo books with a $5.0 Coupon - $15.8
```

6.

```
import java.util.Scanner;

public class CellPhoneService
{
    public static void main(String[] args)
    {
        Scanner input = new Scanner(System.in);

        int talkMinutes, textMessages, dataUsed;

        System.out.print("Enter maximum allowance of talk minutes used per month:
");
        talkMinutes = input.nextInt();

        System.out.print("Enter total count of text messages sent per month: ");
        textMessages = input.nextInt();

        System.out.print("Enter maximum gigabytes of data used per month: ");
        dataUsed = input.nextInt();

        if (talkMinutes<500)
        {
            System.out.println("Recommended Plan - Plan A ($49 per month)");
        }
        else if (talkMinutes<500 && textMessages>0)
        {
            System.out.println("Recommended Plan - Plan B ($55 per month)");
        }
        else if (talkMinutes>=500 && dataUsed==0)
        {
            if (textMessages<100)
            {
                System.out.println("Recommended Plan - Plan C ($61 per month)");
            }
            else if (textMessages>=100)
```

```
            {
                System.out.println("Recommended Plan - Plan D ($70 per month)");
            }
        }
        else if (dataUsed<=3)
        {
            System.out.println("Recommended Plan - Plan E ($79 per month)");
        }
        else if (dataUsed>=3)
        {
            System.out.println("Recommended Plan - Plan F ($87 per month)");
        }

        input.close();
    }
}
```

Output –

```
manis@DESKTOP-279PI44 MINGW64 /f/RDP/1st Term/Introduction to Programming/Lab/Lab 2
$ cd "/f/RDP/1st Term/Introduction to Programming/Lab/Lab 2/" && javac CellPhoneService.java && java CellPhoneService
Enter maximum allowance of talk minutes used per month: 499
Enter total count of text messages sent per month: 98
Enter maximum gigabytes of data used per month: 3
Recommended Plan - Plan A ($49 per month)
```

7.

Part – 1

```
public class Apartment
{
    private int aptNumber;
    private int bedroomsNumber;
    private int bathsNumber;
    public double rentAmount;

    public Apartment(int aptNumber, int bedroomsNumber, int bathsNumber, double
rentAmount)
    {
        this.aptNumber = aptNumber;
        this.bedroomsNumber = bedroomsNumber;
        this.bathsNumber = bathsNumber;
        this.rentAmount = rentAmount;
    }

    public int getAptNumber()
    {
        return aptNumber;
    }
```

```
    public int getBedroomsNumber()
    {
        return bedroomsNumber;
    }
    public int getbathsNumber()
    {
        return bathsNumber;
    }
    public double getRentAmount()
    {
        return rentAmount;
    }
}
```

Part – 2

```
import java.util.*;

public class TestApartments {
    public static void main(String[] args) {
        Apartment apt1 = new Apartment(1, 1, 1, 1000.00);
        Apartment apt2 = new Apartment(2, 2, 2, 2000.00);
        Apartment apt3 = new Apartment(3, 3, 3, 3000.00);
        Apartment apt4 = new Apartment(4, 4, 4, 4000.00);
        Apartment apt5 = new Apartment(5, 5, 5, 5000.00);

        Apartment[] apartmentList = { apt1, apt2, apt3, apt4, apt5 };

        Scanner input = new Scanner(System.in);
        System.out.print("Please Enter your required Bedroom - ");
        int bedroomsNumber = input.nextInt();
        System.out.print("Please Enter your required Bathroom - ");
        int bathsNumber = input.nextInt();
        System.out.print("Please Enter your budget - ");
        double rentAmount = input.nextDouble();

        processData(apartmentList, bedroomsNumber, bathsNumber, rentAmount);

    }

    public static void processData(Apartment[] apartmentList, int bedroomsNumber, int
bathsNumber, double rentAmount) {
        int counter = countApartments(apartmentList, bedroomsNumber, bathsNumber,
rentAmount);
        System.out.println("There are " + counter + " apartments that meet your search
criteria.");
        for (Apartment aptSearch : apartmentList) {
            if (aptSearch.getBedroomsNumber() >= bedroomsNumber &&
aptSearch.getbathsNumber() >= bathsNumber
                    && aptSearch.getRentAmount() <= rentAmount) {
```

```
                System.out.printf(
                        "Apartment " + aptSearch.getAptNumber() + " is available with " +
aptSearch.getBedroomsNumber()
                                +
                                " bedrooms and " + aptSearch.getbathsNumber() + "
bathrooms. It will cost you $%,.2f",
                        aptSearch.getRentAmount());
                System.out.print(" per month.\n");
                counter++;
            }
        }
    }

    public static int countApartments(Apartment[] apartmentList, int bedroomsNumber, int
bathsNumber, double rentAmount) {
        int counter = 0;
        for (Apartment aptSearch : apartmentList) {
            if (aptSearch.getBedroomsNumber() >= bedroomsNumber &&
aptSearch.getbathsNumber() >= bathsNumber
                    && aptSearch.getRentAmount() <= rentAmount) {
                counter++;
            }
        }
        return counter;
    }
}
```

Output –

```
manis@DESKTOP-279PI44 MINGW64 /f/RDP/1st Term/Introduction to Programming/Lab/Lab 2
$ cd "/f/RDP/1st Term/Introduction to Programming/Lab/Lab 2/" && javac TestApartments.java && java TestApartments
Please Enter your required Bedroom - 1
Please Enter your required Bathroom - 1
Please Enter your budget - 1000
There are 1 apartments that meet your search criteria.
Apartment 1 is available with 1 bedrooms and 1 bathrooms. It will cost you $1,000.00 per month.
```